

Instructions for the Installation of Driveway Entrances

1 **Step 1** - Permits

Complete the Work Within Highway Right-of-Way Permit. A representative from the Department of Transportation and Infrastructure Renewal (TIR) will assess the proposed entrance for adequate sight distance and determine if a drainage culvert is required, and if so, the size required. To aid in this, you are requested to mark the proposed entrance with stakes prior to making your application. These stakes are to be placed at the backside of the ditch seven metres apart at desired access locations. You will be notified within 10 working days if the permit has been approved and what size culvert, if any, is required. If approved, work on the driveway entrance may commence.

To ensure the driveway entrance is installed to TIR specifications, a refundable deposit is required. This deposit must be in the form of a certified cheque or money order made payable to the Department of Transportation and Infrastructure Renewal. The amount of deposit required is \$300.00. This deposit will be refunded upon satisfactory completion of the work, as determined by the Area Manager.

If an entrance already exists to the lot, a Work Within Highway Right of Way Permit will be required, and a deposit may be necessary.

2 **Step 2** - Construction of the Driveway Entrance

The applicant is responsible for all aspects of construction, including but not limited to: supply of culvert pipe and backfill materials, rip rap, labour, traffic control and environmental measures. While the work may be completed by the applicant or a contractor engaged by the applicant, ultimate responsibility for the installation rests with the applicant. The applicant must notify the Supervisor named on their permit a minimum of 24 hours prior to beginning installation.

2.1 Environmental Protection

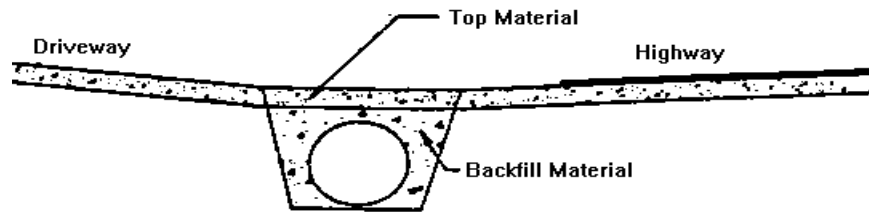
Every effort should be made to expose as little soil to the elements as possible during the construction process. If the culvert is within 100 m of a watercourse, or there is any chance that sediment may enter a watercourse then erosion and sedimentation control measures must be employed, in accordance with Nova Scotia Environment regulations.

2.2 Materials

- a) Culvert Pipe: Unless warranted by specific conditions as determined by TIR staff, pipe size for a new culvert installation shall be a minimum of either 500mm diameter aluminized corrugated steel or aluminum alloy, or 450mm smooth inside wall diameter Class 65D concrete or double walled

smooth interior High Density Polyethylene (HDPE) pipe. In the case of open top culverts, treated wood may be used, however the design of the structure must be approved by the Supervisor. Driveway top shall be a minimum of 5.5 m wide, the length of pipe will vary with the depth of the ditch. The maximum width of driveway top should be 10 m.

- b) Backfill: material shall be 20-25mm gravel or good native soil with no stones over 75mm in the largest dimension. All backfill must be packed in layers of 160mm. The top two layers must be clean gravel and the top layer must not contain stones larger than 20mm in dimension. Slate may be used only if it is from a source approved by the Nova Scotia Environment.
- c) Top Material: shall be 100-160mm of Type 1 (20mm) gravel, sloped to prevent water from running onto the roadway. Minimum slope requirement is 2%. If pavement is desired, it should consist of a minimum of 75mm of hot mix asphalt on a bed of 100-160mm of Type 1 gravel.



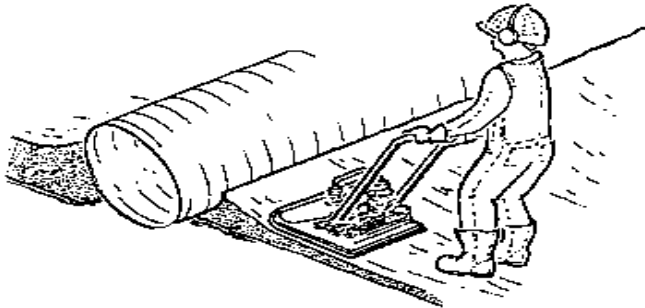
- d) Rip Rap: minimum wall thickness shall be 400mm, therefore, material shall be 400-500mm flat stones. Slate may be used only if it is from a source approved by the Nova Scotia Environment.

2.3 Bed Excavation

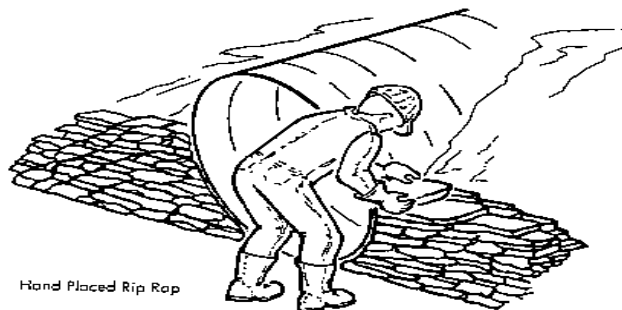
- a) Prepare an area for the pipe in the lowest point of the ditch, aligned with the direction of flow.
- b) All organic material (grass, bushes, etc.) under the length of the pipe shall be removed before placing pipe.
- c) Excavate ditch to a depth of 160mm below existing flow line of ditch.
- d) Fill excavated area with 125mm of Type 1 gravel.

2.4 Pipe Installation

- a) Place pipe on the prepared bed of gravel, following the natural slope of the ditch. This should allow the pipe flow line to be approximately 25mm below the flow line of the ditch.
- b) If two or more pieces of pipe are required, join with approved couplers, available from the pipe manufacturer. Install couplers as per manufacturer's instructions.
- c) Backfill approximately 160mm deep on each side of the pipe and compact with a vibrating compactor. Continue to backfill in 160mm and compact on each side of the pipe before adding more fill. Compacted fill must be kept even on both sides of pipe and must extend the width of the ditch. When backfill material is very granular, clay material should be used to seal the ends to prevent water from flowing through the backfill material.



- d) Place rip rap across the upstream and downstream ends of the installation as soon as possible to prevent erosion. With the approval of the Supervisor, a pre-fabricated concrete headwall can be used in place of rip rap, providing the system is installed so that the bottom of pipe is not above the bottom of ditch on either end. The headwall must not be higher than the roadway shoulder. The Department is not responsible for damage occurring to a raised headwall which is struck by a plow.



- e) Once backfilled, place top material. Backfill plus top material should extend a minimum of 300mm above the top of the pipe.



3 Step 3 - Inspection

A driveway is considered to be complete when the following conditions have been met:

- Culvert is in new condition with no major dents or bends through its length.
- Culvert is of the size noted on the Work Within Highway Right-of-Way Permit.
- Rock rip rap, made of stones at least 300mm in length and 400mm deep, is placed on the ends to within 100mm of the finished top surface. Other end treatments may be used with prior approval of Supervisor shown below.
- There is at least 300mm of cover over the pipe with the top 160mm being gravel with stones no larger than 20mm (Type 1 gravel) from the road edge to the edge of the highway right-of-way (approximately 10 m from the centre of the road).
- Driveway is level with the road shoulder where it meets the road.
- The ditch and road shoulder are left in a neat condition.
- The driveway is sloped so that any water exiting the property via the driveway will enter the ditch rather than run onto the road.

Once the driveway entrance is completely installed, notify the local office to arrange for an inspection. If the Area Manager is satisfied with the installation, s/he will approve refund of the deposit. If not, you will be notified of the deficiencies and asked to correct them. A reinspection will then be required.

If the driveway is not installed properly after two inspections, TIR reserves the right to remove the entrance. In this case, the deposit will not be refunded.

4 Responsibilities

After the entrance is installed and approved, should the culvert deteriorate from age and use, TIR will replace the entrance as required, subject to the following conditions:

- a) Residential - up to one 5.5 m wide top width completely at the expense of TIR. (Where the driveway alignment and/or gradient are such that it is not possible to achieve a useable 5.5 m wide top width with a standard 6 m culvert length, a 9 m length may be installed.)
- b) Churches, Cemeteries and other non-profit Agencies - up to two 9 m wide top width completely at the expense of TIR.
- c) Commercial operations, including Lumber and Pulp Wood operations - completely at the owner's expense.

When replacing the entrance, any existing end treatments may be removed and replaced with rip rap as per 2.2 (d) above. Replacement pipe will be of the type commonly used by TIR at the time of replacement.

TIR will not maintain the driveway top, with the exception of normal shouldering operations, and in that case only to the extent of the shoulder and not the road limit. Frost heave of the culvert will only be corrected if it is causing a problem with water flow in the ditch.

The owner is expected to keep the culvert free from obstructions, maintain the rip rap on the ends and keep the top graded as to prevent water flow onto the roadway.